

# 2016 Space Sciences Week

## The National Academies of Sciences, Engineering and Medicine in Washington, DC, Symposium on “Research in Commercial LEO”



Paul Reichert; Panelist  
Merck Research Laboratories, Structural Chemistry, Kenilworth, NJ

# Paul Reichert; Background

- Associate Principal Scientist at Merck Research Labs-Kenilworth, NJ in the department of Structural Sciences
- 30 years experience in pharmaceutical applications in crystallization technology for both small molecule and macromolecular targets
- In collaboration with UAB / NASA participated in 11 space shuttle missions under commercial protein crystal growth program
- Currently in collaboration with CASIS; Principal Investigator for biologics crystallization experiments on SpaceX-CRS-3 & 6
- Planning biologics crystallization experiment on SpaceX-CRS-10

# Why Microgravity ?

- Investigate opportunities to take advantage of microgravity enhanced crystallization effects:
  - Reduce sedimentation
  - Minimize convection currents
  - Reduce molecular diffusion rates
- Apply to pharmaceutical applications for crystalline biologics:
  - Drug Discovery
    - ♦ Structure determination
    - ♦ Structure based drug design
  - Manufacturing
    - ♦ Purification
    - ♦ Storage
  - Product development
    - ♦ Drug delivery